Test Procedure for

SLUMP LOSS OF HYDRAULIC CEMENT CONCRETE

TxDOT Designation: Tex-430-A

Effective Date: February 2005

1. SCOPE

1.1 Use this method to determine the slump loss of freshly mixed hydraulic cement concrete over a period of time.

1.2 This method is applicable for drilled shaft concrete placed by slurry displacement or underwater placement methods, or when casing is used. It is also applicable in special circumstances as required by the Engineer.

1.3 The purpose of this test procedure is to ensure that drilled shaft concrete has a slump between 7 and 9 in. (180 and 230 mm) when placed and maintains a slump of 4 in. (100 mm) or more throughout the drilled shaft concrete placement time. It also ensures that the slump loss is gradual, as evidenced by the slump loss test described below.

1.4 The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.

2. SAMPLING

2.1 Sample fresh concrete in accordance with Tex-407-A.

3. PROCEDURE

3.1 Perform the slump loss test a minimum of 48 hr. before drilled shaft concrete operations begin, demonstrating that the drilled shaft concrete maintains a slump of at least 4 in. (100 mm) throughout the projected concrete placement time.

3.1.1 This test may be performed at the concrete plant.

3.1.2 Notify the Engineer at least 48 hr. before performing this slump loss test in order to allow arrangements for a Department representative to witness the mixing and testing required.

3.2 Prepare the approved mix for the slump loss test at a temperature consistent with ambient and concrete temperatures expected during actual concrete placement.

3.2.1 Obtain the Engineer's approval of the test temperature.

3.2.2 Ensure that the mix volume is at least 3 $yd.^3$ (2.3 m^3) and is mixed in a mixer truck.

3.2.3 Begin measuring concrete placement time when initially introducing water into the mix.

3.3 Perform the initial slump test at the end of the mixing time.

3.3.1 Determine and record the slump in accordance with Tex-415-A, the concrete temperature in accordance with Tex-422-A, the ambient temperature and air content in accordance with Tex-414-A or Tex-416-A, and the time.

3.3.2 Ensure that the concrete properties are within the required specification limits.

3.4 After the initial slump test, remix the concrete for 30 sec. every 5 min. at the mixing speed of the mixer, except for the 30-min. intervals discussed in Section 3.5.

3.5 Every 30 min., remix the concrete for 1 min. at the mixing speed of the mixer.

Note 1—There will be five incidences of 30 sec. mixing followed by one incidence of 1 min. mixing.

3.5.1 Determine and record the slump, concrete temperature, ambient temperature, air content, and time.

3.6 Discontinue the test when the slump test results in a slump of 2 in. (50 mm) or less.

4. GRAPHS

4.1 Plot slump versus elapsed time.

5. REPORT

5.1 Report the slump versus elapsed time in a graphical form.

5.2 If the slump from the graph is less than 4 in. (100 mm) at the end of the projected placement time for the drilled shaft, redesign the mix and repeat the procedure.